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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/920,042	08/01/2001	Abraham Karel Riemens	NL 010506	5443

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EXAMINER

CHAUHAN, ULKA J

ART UNIT	PAPER NUMBER
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2676

DATE MAILED: 06/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/920,042

Applicant(s)

RIEMENS ET AL.

Examiner

Ulka J. Chauhan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Response to Arguments

1. In view of the Appeal Brief filed on 4/13/04, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

- (1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,
- (2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

2. Claims 1-8 are pending.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. **Claims 1-5 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,662,278 to Kahn et al.**

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5. As per claim 1, Kahn teaches a computer system 200 including a processor 202; and a bridge 204, comprising a graphics controller 206, and a memory controller 208 (***“A processor for executing image processing”***) [Fig. 2]; and a main memory 224, which stores data (pixels, frames, audio, video, etc.) and software (control logic, instructions, code, computer programs, etc.) for access by other system components [c. 4 ll. 50-54]. The memory controller includes counters 216 that measure memory bandwidth over a period of time [c. 4 ll. 22-28] and trigger memory throttle mode if the number of main memory accesses exceeds a limit [c. 5 ll. 51-56]. If the number of words exceeds the number of allowed accesses, then all accesses to main memory from that point in time until the end of the throttle-monitoring window are blocked, such that read and write requests from the processor 202, the I/O devices 226, and the graphics controller 206, are blocked [c. 5 ll. 61-67]. Kahn discloses a masking tool 290 located in the memory controller 208 that controls the bandwidth of the main memory [c. 6 ll. 8-11] by selecting a mask (***“implementing a programmable slowdown factor S”***) comprising interleaved “1”s and “0”s, in which each “0” corresponds to a clock cycle in which memory access is allowed and each “1” corresponds to a clock cycle in which memory access is blocked (***“having programming means for implementing programmable stall clock cycles interspersed between said effective clock cycles”***) [c. 6 ll. 22-29 and ll. 47-50]. And Kahn disclose using the adaptive masking tool to increase or decrease memory bandwidth allocation (***“a modified number of C*S overall clock cycles will effect processing of said predetermined amount of image information”***) and smoothing out memory accesses between the different time periods [c. 2 ll. 58-65].

6. As per claim 2, Kahn discloses a throttle mechanism 500 including throttle time 502 comprising throttle-monitoring windows 504a-d each having a predetermined number of allowed

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accesses 506a-d respectively [Fig. 5 and c. 6 ll. 51-61]. Kahn discloses that at the end of each throttle-monitoring window, a higher or lower mask is applied by the masking tool 290 based on the memory traffic, resulting in an average memory bandwidth over a long period of many throttle-monitoring windows [c. 8 ll. 5-17].

7. As per claims 3 and 4, Kahn discloses that bridge 204 includes a graphics controller 206, and a memory controller 208, is coupled to a shared main memory 224 [Fig. 2].

8. As per claim 5, Kahn discloses that aspects of the invention can be implemented using an ASIC [c. 8 ll. 33-36].

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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11. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,662,278 to Kahn et al and U.S. Patent No. 6,674,479 to Cook et al.

12. As per claim 6, Kahn discloses processing pixels, frames, audio, and video data [c. 4 ll. 50-52]. Kahn discloses that the set of masks provides seven percent resolution and allocates seven percent of memory bandwidth to the memory controller ("*different percentages of stall clock cycles*") [c. 6 ll. 36-39 and Fig. 3]. Therefore, certain graphics controller operations would require a greater number of cycles to complete in case of reduced memory bandwidth allocation. Kahn does not expressly teach executing two different image processing operations. Cook teaches a computer system comprising a processor 112, and a chipset 110, which includes a graphics and memory controller hub (GMCH) 120 [c. 5 ll. 26-37]. The GMCH 120 operates as a bridge providing graphics and video functions, and including a graphics controller, which in turn includes a 3D engine, a 2D engine, and a video engine [c. 5 ll. 39-55]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the graphics controller including 3D, 2D, and video engines taught by Cook, in combination with the graphics controller taught by Kahn. One would have been motivated to do so in order to provide an enhanced system that performs both graphics and video/image processing functions, whereby in cases of reduced memory bandwidth, necessary image processing functions are completed with the reduced available memory bandwidth under respective different percentages of the stall clock cycles.

13. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,662,278 to Kahn et al.

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14. As per claim 8, Kahn does not expressly teach allowing another bus master to grab the bus during the stall cycle. However Kahn does disclose that in an embodiment where the masking device is in the graphics local memory 230, a thermal sensor 240 can trigger memory throttling by indicating to the graphics controller 206 that the temperature in the graphics local memory 230 is too high [c. 5 ll. 33-37]. In another embodiment, the masking tool 290 is located in the graphics local memory 250, or in the graphics controller 206, and controls the bandwidth of the graphics local memory 250 [c. 6 ll. 15-21]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied the main memory and graphics local memory throttling to the graphics controller, whereby processing of the graphics controller is stalled. One would have been motivated to do so in order to allow another device, i.e. processor 202, to become the bus master while the graphics controller is throttled in order to optimize shared main memory bandwidth utilization.

Double Patenting

15. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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16. Claims 1-8 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6, 8, and 10 of copending Application No. 10/207,507. Although the conflicting claims are not identical, they are not patentably distinct from each other because the only difference in the claims is that the instant application recites a processor for executing image processing while the copending application recites a processor for executing digital signal processing. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the processor executing digital signal processing to execute image processing as recited in the instant application in order to apply the advantages of the copending application to image processing applications.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

17. The following prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6058450 U.S. Patent No. 5953685 U.S. Patent No. 5896141

U.S. Patent No. 5719800 U.S. Patent No. 5175844 U.S. Patent No. 4981296

U.S. Patent Application Publication No. 2002/0126759

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Ulka Chauhan** whose telephone number is (703) 305-9651. The examiner can normally be reached Mon.-Fri. from 9:00 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Matthew Bella**, can be reached at (703) 308-6829.

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Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA, Sixth Floor (Receptionist).

19. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 305-4700.



Ulka J. Chauhan
Primary Examiner
Art Unit 2676

ujc
April 27, 2004